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SHORT COMMUNICATION

Prevalence of Class 1 Integron Among Multidrug-Resistant *Acinetobacter baumannii* in Tabriz, Northwest of Iran

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Abstract

Integrons are associated with a variety of gene cassettes, which confer resistance to multiple classes of antibacterial drugs. In this study we tested the frequency of class 1 and 2 integrons among multidrug-resistant *Acinetobacter baumannii* (MDRAB) clinical isolates. One hundred clinical isolates of *A. baumannii* were screened for carriage of class 1 and 2 integrons by PCR method. Results showed that seventy four (92.5%) of 80 MDRAB carried class 1 integron. Integron-positive isolates were statistically more resistant to aminoglycoside, quinolone and beta-lactam compounds except for cefepime. This is the first report of class 1 integrons in MDRAB isolates in northwest Iran.

Key words: *Acinetobacter baumannii*, class 1 integron, multidrug resistance

Acinetobacter baumannii (*A. baumannii*) is one of the most important nosocomial pathogens that causes various types of clinical infections (Dinc *et al.*, 2010). This organism is ranked second after *Pseudomonas aeruginosa* among gram-negative nosocomial pathogens (Berlau *et al.*, 1999). *A. baumannii* is becoming a serious clinical concern due to its noticeable ability to develop resistance to several classes of antimicrobial drugs. There are increasing reports of multidrug-resistant *A. baumannii* (MDRAB) outbreaks in clinical settings worldwide (Peleg *et al.,* 2008). The MDRAB term was defined as those isolates that are intermediate or resistant to at least three different classes of antimicrobial agents mainly beta-lactams, aminoglycosides, fluoroquinolones and carbapenems (Huang *et al.*, 2008). Carbapenems are currently the drugs of choice for treatment of severe infections caused by this organism. However, resistance to carbapenems in this species is now reported increasingly throughout the world (Marais *et al.,* 2004; Merkier *et al.,* 2008; Dijkshoorn *et al.,* 2007). Studies have shown that MDRAB may be developing through the acquisition or horizontal transfer of the antibiotic resistance genes. Integrons are mobile genetic elements capable to capture and speared of antimicrobial resistance genes. To date, several classes of integrons have been described among them class 1 and 2 integrons are the most frequently identified integrones in clinical isolates of *A. baumannii* that confer resistance to multiple classes of antimicrobial drugs (Oh *et al.,* 2002). The aims of this study were to determine the frequency of class 1 and 2 integrons among MDRAB clinical isolates and to investigate the association between the presence of integrons and antibiotic resistance patterns in MDRAB isolates.

This study was carried out at a 1000 beds tertiary care hospital in Tabriz, Northwest Iran. Written informed consent was obtained from all subjects enrolled in this study and the protocol was approved by the Regional Ethical Committee. A total of 100 non-duplicated clinical isolates were collected during a period of 16 months between March 2008 and June 2009 from patients admitted to hospital. All isolates were identified using standard bacteriologic and biochemical methods such as: gram stain, oxidase test, motility, catalase test, citrate test, O/F (Oxidation-Fermentation) test and growth at 37°C and 44°C (Feizabadi *et al.,* 2008). Species identification was confirmed by detection of $bla_{\text{OXA-51-like}}$ gene as described previously (Turton *et al.*, 2006).

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